

# SHIPCONSTRUCTOR<sup>®</sup>

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## 2013

Featuring: Database Driven Relational Object Model™ (DDROM™).  
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## Reports

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## ShipConstructor 2012 Reports

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28. Applicable Law. This Agreement shall be subject to and construed in accordance with the laws of the Province of British Columbia, Canada, excluding its conflict of laws rules and the application of the UN Convention on Contracts for the International Sale of Goods.
29. References. SSI shall be allowed to incorporate Licensee's name in SSI's customer reference list and to use it for marketing.
30. Dispute. If any dispute arises under this Agreement, a good faith attempt to resolve the dispute will be made by senior management of both parties at a mutually agreeable site and time. If the parties are unable to reach agreement within 30 days after a request for such meeting, the dispute shall be referred to arbitration in English, before one arbitrator in Victoria, British Columbia, Canada, in accordance with the Commercial Arbitration Act of the British Columbia.
31. Entire Agreement. This Agreement contains the entire agreement between the parties and shall supersede all prior discussions and agreements between the parties regarding its subject matter.
32. Amendment. Any amendment of this Agreement must be in writing and signed by duly authorized representatives of the parties.
33. Waiver. The waiver by any party of a breach by the other party of this Agreement shall not be construed as a waiver by such party of any succeeding breach by the other party of the same or another provision.
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38. Survival. The provisions of Sections 3, 5, 11, 13, 14, 17 and 20-30 shall survive the expiry or termination of this Agreement.

39. Language. It is the express will of the parties that this Agreement and related documents have been prepared in English. C'est la volonté expresse des parties que la présente Convention ainsi que les documents qui s'y rattachent soient rédigés en anglais.



# Contents

<b>ShipConstructor Report</b>	<b>3</b>
Starting ShipConstructor Report .....	3
<b>Report Basics</b>	<b>5</b>
Sections and Sub-sections .....	5
Grouping .....	6
<b>Creating and Editing Report Definitions</b>	<b>8</b>
Report Definition Window .....	8
Report Tree .....	8
Report Properties .....	9
Report Actions .....	10
Edit Report Definition Window .....	10
Report Section Tree .....	10
Section Fields List .....	11
Edit Grouping .....	11
Aggregate Functions on Report Groups .....	12
Edit Sorting .....	12
<b>Generating a Report</b>	<b>13</b>
Generating a Product Hierarchy Report .....	13
Generating a Distributed Systems Report .....	14
Generating a Model Drawings Report .....	14
Generating a 'Other' Report .....	14
Exporting a Generated Report .....	15
<b>Index</b>	<b>17</b>



## Reports

# SHIPCONSTRUCTOR<sup>®</sup>

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# 2013

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# ShipConstructor Report

ShipConstructor Report is a tool for generating textual reports on parts, product hierarchy, system, and nesting data contained within the ShipConstructor model.

## Starting ShipConstructor Report

ShipConstructor Report can be started one of two ways:

1. Choose ShipConstructor 2013 > Utilities > Report.
2. Click the Report button, , on the main ShipConstructor 2013 toolbar.

If you are already connected to a ShipConstructor project while opening Report using the latter option, you will be automatically connected to that project within the report application. If you are not already connected to a ShipConstructor project, then you will be prompted to connect to one. You will also be prompted at this time to acquire a ShipConstructor report license.

ShipConstructor Report

File Reports Window

Product Hierarchy/BuildStrategy - Pipe Spool

**Product Hierarchy** Distributed Systems 3D Drawings

PRIMARY Four Second Three

	Gadget
SC 2008-188	
UNSPOOLED PIPE	
UNSPOOLED HVAC	
UNASSIGNED PIPE	
UNASSIGNED HVAC	
UNASSIGNED EQUIPMENT	
UNASSIGNED SUPPORTS	
Unassigned Structure	
A1	
G906	
G907	

**Attributes**

Name	2008-188
Build Strategy	Three
Rank	Project
Unit	
Part Count	486
Weight	266139 kg
Surface Area	3559913341 mm <sup>2</sup>
Volume	33308874908 mm <sup>3</sup>
CG Point	(63306, -273, 1801) mm
Minimum Extents	(-3275, -17752, -969) mm
Maximum Extents	(73400, 17018, 22828) mm

**User-Defined Attributes**

- Equipment
- HVAC
- Pininn

Ready

DAN\_METRIC\_TR

# Report Basics

## Sections and Sub-sections

To understand how report output is broken into sections, please consider the following report output:

Page Numbers

Report Title

Project Name

Report Creation Date

ShipConstructor

Page 1 of 16

Report Title - 2008-188

7/23/2009 10:22:53 AM

Assemblies Section Header

Assemblies Section

Plate Parts Section Header

Plate Parts Section

Assemblies Section

Plate Parts Section Header

Plate Parts Section

Name Full

PROJECT

PROJECT/G906

Name

Stock

Weight (kg)

--P01

PL12

669.763

--P02

PL10

78.500

--P04

PL10

7.849

--P05

PL12

113.040

--P06

PL10

7.849

--P07

PL10

7.543

--P08

PL12

527.030

--P09

PL15

495.963

--P10

PL08

0.747

--P13

PL10

0.116

--P16

PL10

0.190

--P20

PL04

0.039

--P22

PL04

0.039

--P23

PL06

23.656

--P24

PL06

68.375

PROJECT/G906/A056

PROJECT/G906/A056/PS01

Name

Stock

Weight (kg)

A056-PS01-P01

PL25

1785.350

A056-PS01-P02

PL25

6167.284

A056-PS01-P03

PL25

1778.502

A056-PS01-P04

PL25

1287.860

A056-PS01-P05

PL25

2105.359

A056-PS01-P06

PL25

1586.916

A056-PS01-P07

PL25

2531.938

A056-PS01-P08

PL25

7497.242

PROJECT/G906/A056/S04

PROJECT/G906/A056/S04/PS02

PROJECT/G906/A056/S04/S03

PROJECT/G906/A056/S04/S03/F55

PROJECT/G906/A056/S04/S03/F56

Name

Stock

Weight (kg)

A056-F56-P03

PL12

135.532

PROJECT/G906/A056/S04/S03/F57

Name

Stock






Weight (kg)

A056-F57-P16

PL12

161.807

The report shown above is a build strategy report, containing 2 sections. The first section is the Assemblies section, and is shown with a Purple background. The second section is the Plate Parts section, and is shown with a white background.

Include	Section Name	Font Size	Header
<input checked="" type="checkbox"/>	 <b>Assemblies</b>	<b>10</b>	<b>Hide if Blank</b>
<input checked="" type="checkbox"/>	  <b>PlateParts</b>	<b>10</b>	<b>Hide if Blank</b>
<input type="checkbox"/>	  ProfileParts		

You will notice that because the Plate Parts section is a sub-section of the Assemblies section, plate parts will be shown in the report broken out by the individual assemblies which contain the plate parts. If you were to not include the Assemblies section in the report, all plate parts would be grouped together in a single section.

## Grouping

Often, you will want to group all similar parts together based on one of their properties, such as by Stock. This can be done in 2 different ways. You can include the Stock column as a field in your section, and sort by that field, resulting in all parts with the same stock being ordered together, or you can Group your report by Stock. Not only does grouping create sub-sections for all parts sharing the same stock, but it also allows you to perform aggregate functions on fields these sub-sections, such as Count, Average, and Sum. This is ideal for creating a stock usage report, where you are not interested in information on individual parts.

For an example of grouping in a report, consider the following report definition:

# Edit Report

Include	Section Name
<input type="checkbox"/>	Assemblies
<input checked="" type="checkbox"/>	PlateParts
<input type="checkbox"/>	ProfileParts
<input type="checkbox"/>	CorrugationParts

## Section Fields: PlateParts

Field Name	Display Name	Field Width (mm)
Name	Name	50
Stock	Stock	50
Weight	Weight	25.4

## Edit Section Grouping

### Groups

Group Field	Display Name	Include Label	Field Width (mm)	Display Units	Decimal Places	Font Size	Fore Color
Stock	Stock	Yes	25.4			9	Black

### Summary Fields: Stock

Name	Display Name	Function	Include Label	Field Width (mm)	Display Units	Decimal Places	Alignment
Extents Max Long.	Count	Count	Yes	25.4	mm	3	Right
Area	Area	Sum	Yes	25.4	mm	3	Right

This report definition will result in output similar to the following:

ShipConstructor Page 1 of 7 Report Title - 2008-188 7/23/2009 11:22:58 AM

<b>Stock: PL04</b>		<b>Count:</b>	<b>2</b>	<b>Area (m²):</b>	<b>0.003</b>
<b>Name</b>	<b>Stock</b>	<b>Weight (kg)</b>			
--P20	PL04	0.039			
--P22	PL04	0.039			
<b>Stock: PL06</b>		<b>Count:</b>	<b>9</b>	<b>Area (m²):</b>	<b>26.622</b>
<b>Name</b>	<b>Stock</b>	<b>Weight (kg)</b>			
A258-P06-P01	PL06	249.187			
A258-P06-P01	PL06	249.187			
A258-P06-P29	PL06	249.184			
--P23	PL06	23.656			
--P24	PL06	68.375			
--P29	PL06	22.044			
--P30	PL06	18.511			
--P31	PL06	124.705			
<b>Stock: PL08</b>		<b>Count:</b>	<b>1</b>	<b>Area (m²):</b>	<b>0.012</b>
<b>Name</b>	<b>Stock</b>	<b>Weight (kg)</b>			
--P10	PL08	0.747			

Annotations on the right side of the first report:

- Group Header (points to the Stock: PL04 header)
- Plate Parts Section Header (points to the Name header)
- Plate Parts Section (points to the --P20 row)
- Group Header (points to the Stock: PL06 header)
- Plate Parts Section Header (points to the Name header)
- Plate Parts Section (points to the A258-P06-P01 row)
- Group Header (points to the Stock: PL08 header)
- Plate Parts Section Header (points to the Name header)
- Plate Parts Section (points to the --P10 row)

As you can see, all of the parts using the PL04 stock have been grouped together, and you can see a count of the number of parts using that stock in the group header, as well as the total area of all parts that use that stock. Where this really comes in handy is when all you want is a summary report that does not show information on each individual part. To create a summary-style report, edit the report definition you just created, and remove all of the section fields from the Plate Parts section, leaving only the Grouping options configured. This will leave you with a report similar to the following:

ShipConstructor Page 1 of 1 Report Title - 2008-188 7/23/2009 11:30:49 AM

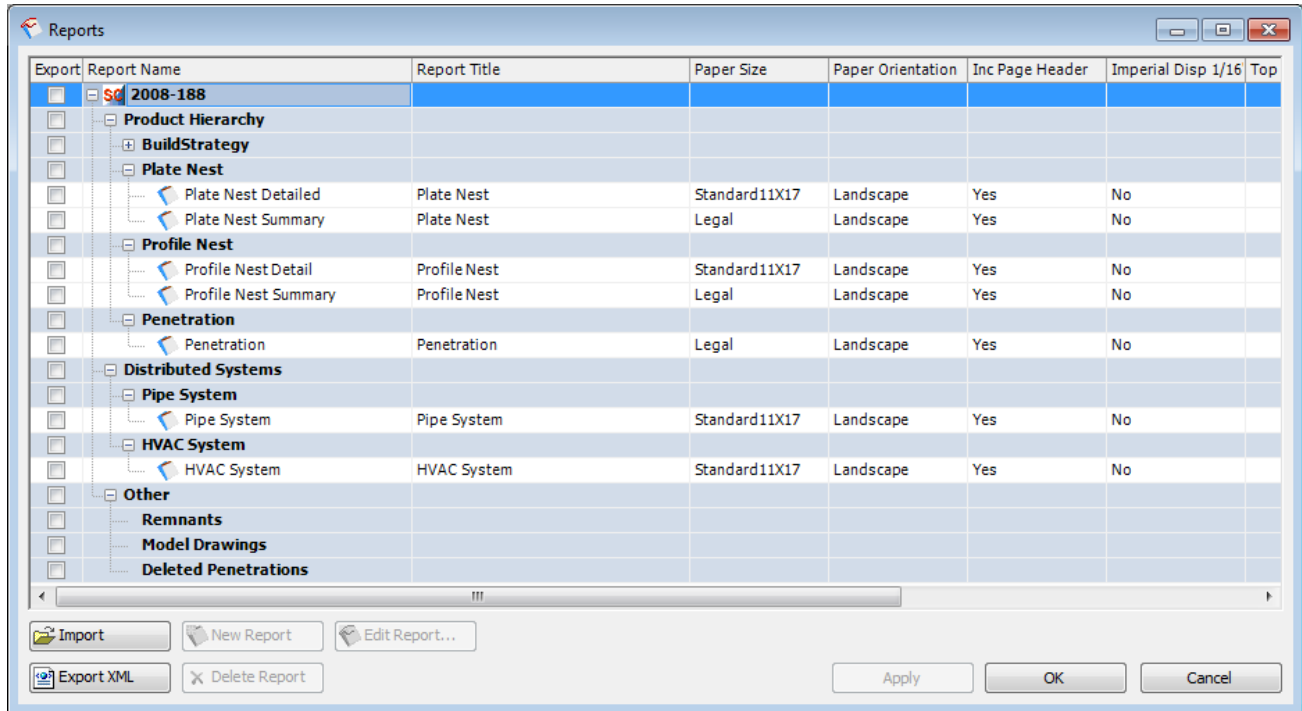
<b>Stock: PL04</b>	<b>Count:</b>	<b>2</b>	<b>Area (m²):</b>	<b>0.003</b>
<b>Stock: PL06</b>	<b>Count:</b>	<b>9</b>	<b>Area (m²):</b>	<b>26.622</b>
<b>Stock: PL08</b>	<b>Count:</b>	<b>1</b>	<b>Area (m²):</b>	<b>0.012</b>
<b>Stock: PL10</b>	<b>Count:</b>	<b>8</b>	<b>Area (m²):</b>	<b>4.244</b>
<b>Stock: PL12</b>	<b>Count:</b>	<b>118</b>	<b>Area (m²):</b>	<b>500.694</b>
<b>Stock: PL15</b>	<b>Count:</b>	<b>13</b>	<b>Area (m²):</b>	<b>54.806</b>
<b>Stock: PL20</b>	<b>Count:</b>	<b>45</b>	<b>Area (m²):</b>	<b>445.419</b>
<b>Stock: PL25</b>	<b>Count:</b>	<b>30</b>	<b>Area (m²):</b>	<b>494.933</b>
<b>Stock: PL44</b>	<b>Count:</b>	<b>19</b>	<b>Area (m²):</b>	<b>70.790</b>

As you can see, this gives you a very compact, quick overview of your stock usage.

# Creating and Editing Report Definitions

Report definitions can be created and edited via the Report Definitions window. To begin editing report definitions, select Reports > Report Definitions from the main menu.

## Report Definition Window



## Report Tree

The tree in the Report Definitions window lists all report definitions you have created and breaks them down by discipline and type. There are various types of reports to ShipConstructor can generate such as:

### Product Hierarchy\Build Strategy (PWBS) Report

Although the name of this type of report generally indicates that you are reporting on the assembly breakdown of your project, that is only a subset of the possible report definitions you can generate using this report type. Other report definitions of this type include part lists, materials takeoff, etc. Reports on parts contained within the entire project or a subset of the Product Hierarchy. Build strategy reports can contain sections for all types of parts in ShipConstructor. At run time, you choose the subset of the project you wish to report on by selecting a node in the Product Hierarchy tree. For instances where you want to generate a report on a particular part type across the entire project. A Build strategy report should be used. Only parts assigned to the assembly, or sub-assemblies of the currently selected assembly/assemblies in the Product Hierarchy (PH) tree will appear in the report.

### Product Hierarchy\Penetration Report

Reports on penetrations in your project. By selecting a particular assembly in the PH tree when generating the report, only penetrations that involve parts within that section of the project will appear in the report output.

**Product Hierarchy\Plate Nest Report**

Reports on plate nests in your project. By selecting a particular assembly in the PH tree when generating the report, only plate nests that involve parts within that section of the project will appear in the report output. Parts which have not been nested will not appear in the report output.

**Product Hierarchy\Profile Nest Report**

Reports on profile nests in your project. By selecting a particular assembly in the PH tree when generating the report, only profile nests that involve parts within that section of the project will appear in the report output. Parts which have not been profile nested will not appear in the report output.

**Distributed Systems\Pipe System Report**

Reports on pipe parts in your project based on their system/branch. This report will include only systems or parts contained by the currently selected system(s) in the Pipe Distributed Systems tree.

**Distributed Systems\HVAC System Report**

Reports on HVAC parts in your project based on their system/branch. This report will include only systems or parts contained by the currently selected system(s) in the HVAC Distributed Systems tree.

**Model Drawings\Part List Report**

Used to generate a list of parts modeled in the specified drawing(s). The sections available are similar to those in the [Product Hierarchy\Build Strategy \(PWBS\) Report](#), the difference being the parts shown in the report are restricted to the ones modeled in the drawings selected in the Model Drawings tree.

**Other\Stock Inventory Report**

Reports on stock inventory and remnants in your project. This report will generate a complete list of inventory or remnants, regardless of which assembly you have selected in the PH tree.

**Other\Deleted Penetrations Report**

Reports on all penetrations marked for deletion in your project. This report will generate a complete list of deleted penetrations, regardless of which assembly you have selected in the PH tree.

**Other\Project Equipment List Report**

Reports on all items in your project equipment list. This report will generate a complete list of project equipment list items, regardless of which assembly you have selected in the PH tree. If you are interested only in modeled equipment, this information is available in a [Product Hierarchy\Build Strategy \(PWBS\) Report](#).

**Other\Equipment Stock Discrepancy Report**

Reports on all items in your project equipment list that have a different equipment standard specified in the project equipment list than that which the modeled part uses. This report will generate a complete list of offending project equipment list items, regardless of which assembly you have selected in the PH tree.

**Report Properties**

The following fields are specified per report definition:

Report Name – The name that the report is referred to in the editing and generating portions of ShipConstructor Report.

Report Title – The title of the report. This appears at the top of each page of the report.

Paper Size – The size of the generated report.

Paper Orientation – The orientation of the generated report.

Inc. Page Header – This determines whether each page of the report contains the standard page header.

Imperial Disp. 1/16" – This determines whether length values in the report are displayed in standard imperial format or not.

## Report Actions

The following actions can be performed via the report definition editor:

**Import and Export XML** – Report definitions can be imported and exported either via XML or directly from another ShipConstructor project.

**New Report** – This button lets you create a new report definition beneath the selected discipline and type.

**Delete Report** – This button lets you delete the selected report definition.

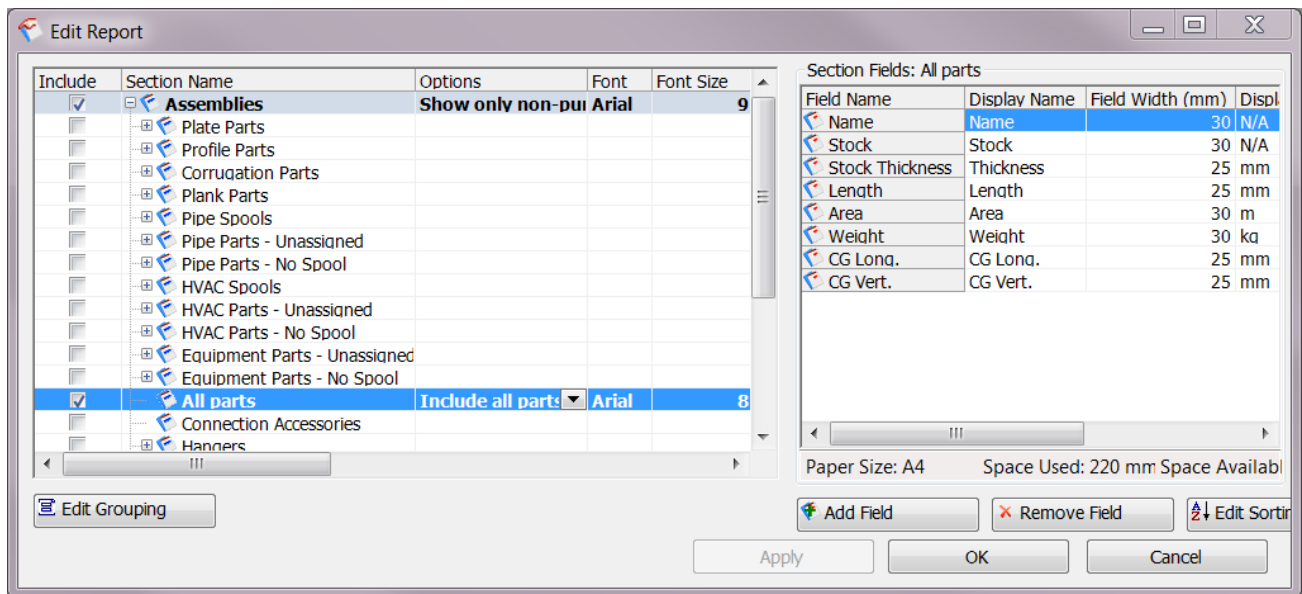
**Edit Report...** – This button lets you begin editing the selected report definition.

**Copy Report** – This lets you copy the selected report definition. This makes it easy to make different variations of the same report, or to “test” modifications to your report definition without having to worry about breaking your current definition.

**Copy Report for Excel Export** – This lets you copy the selected report definition. The new version will be the same as the original, except that page headers have been removed, and will have wider text columns so that they do not line-wrap. This report might not look very good in the report preview, but will produce better results when exporting to Excel.

**OK, Apply and Cancel** – These buttons let you save or discard the changes you have made since you opened the Report Definition window. Until you click OK or Apply, changes you have made to the report definitions are not available when you generate a report.

## Edit Report Definition Window



## Report Section Tree

The report section tree shows a breakdown of all the available sections you can include in the current report and the report sections you have chosen to include. Selecting one of the included sections shows you the fields you have chosen to include from that section. Certain sections can only be included by including the appropriate section above it. If you select one of these sections, the corresponding parent sections are automatically selected.

**Include** – This is where you select the related report section to include in this report.

**Section Name** – The name of the report section.

**Options** – Filtering options for purchased assemblies

For assemblies:

Show all assemblies – Show all assemblies included in this report section



Show only non-purchased assemblies -- Show only assemblies that have a purchased flag not set

For parts:

Include all parts -- Show all parts included in this report section

Include only parts in non-purchased assemblies -- Show only parts in assemblies that have a purchased flag not set

Font Size -- The size of the font used for data in this report section.

Header -- Options to determine the behavior of the section header in the case of a blank section.

Show -- Always show the section header, even if there are no rows for that section

Hide -- Never show the section header for this section

Hide If Blank -- (default) Only show the section header if there are rows for that section.

Repeat Header -- Options to determine how often the section header will be repeated.

Each Section Page - The section header will be repeated for all section/page breaks.

Once Per Section - Don't repeat header on page breaks, just show header at the beginning of each section.

Once Per Page - Don't repeat section header if section occurs multiple times on the same page.

Fore Color -- The color of the text and other items in this report section.

Back Color -- The background color for this report section.

Header Fore Color -- The color of the text and other items in the header for this report section.

Header Back Color -- The background color of the header for this report section.

Keep Together -- If set to true, extra page breaks will be inserted if they can prevent the section from being broken across multiple pages. If you would rather conserve paper, set this to "No".

## Section Fields List

The Section Fields list shows each of the fields chosen for the selected report section. The fields are listed in the order they will appear in the report from left to right, and can be moved up and down as desired by dragging the left-most column up and down in the list. Report fields can be added and removed via the Add Field and Remove Field buttons.

Field Name -- The field in the ShipConstructor database the values will come from

Display Name -- The name for the field as shown in report section headers in a generated report.

Field Width -- The width of the field in the generated report. To assist you in judging how much space is available in your report before running off the right-hand margin, there is a "Space Available" indicator in the status bar at the bottom of the fields list.

Display Units -- The units that values in this field should be converted to and displayed as.

Decimal Places -- The number of decimal places to round numeric fields to. If you are formatting in standard imperial format, the precision is dictated by this field. Values will be rounded to the nearest  $\frac{1}{2}^n$  where n is the "Decimal Places" value.

Example:

4 = Nearest 16<sup>th</sup>.

5 = Nearest 32<sup>nd</sup>.

Alignment -- The text justification (Right/Left/Center) for the current field.

## Edit Grouping

Opens the Edit Section Grouping window and lets you group the current report section where the values in the selected field are the same across multiple rows in the report. Other calculated fields (Sum, Avg, and Count) can be included in the group section based on available fields from that section. That is, the sum of all profile lengths can be included where the report is grouped by the stock of those parts.

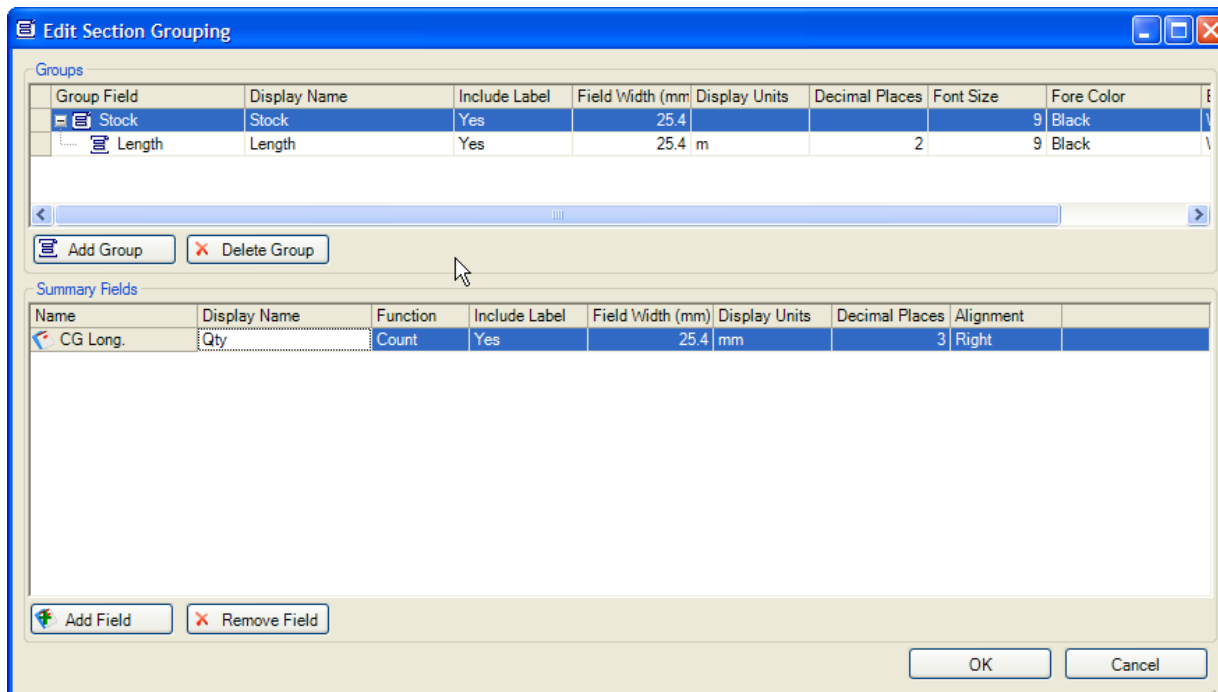
Groups can be nested, so if you wanted to group by stock first, and then have sub-groups for length, you would add two groups, the first on the "Stock" Field, and the second on the "Length" field.

## Aggregate Functions on Report Groups

**HINT:** If you would like a “summary report”, which does not include data for individual parts, but only summary information (part count, total length, etc), do not include any section fields for your “Parts” section, and add a group (or groups) with Summary Fields instead.

Once you have defined a report group, you can create summary fields for that group. A summary field is a function which is calculated on all corresponding values for parts contained within that group. Common examples for summary fields would be a “Part Count”, or “Sum of Weight” calculation.

To get a “Part Count” column, select any field for the “Summary Fields” section that is guaranteed to hold a value, and set the Function to “Count” instead of the default “Sum”. You can then change the display name of the field to “QTY”, or something appropriate, as shown in the following screenshot.

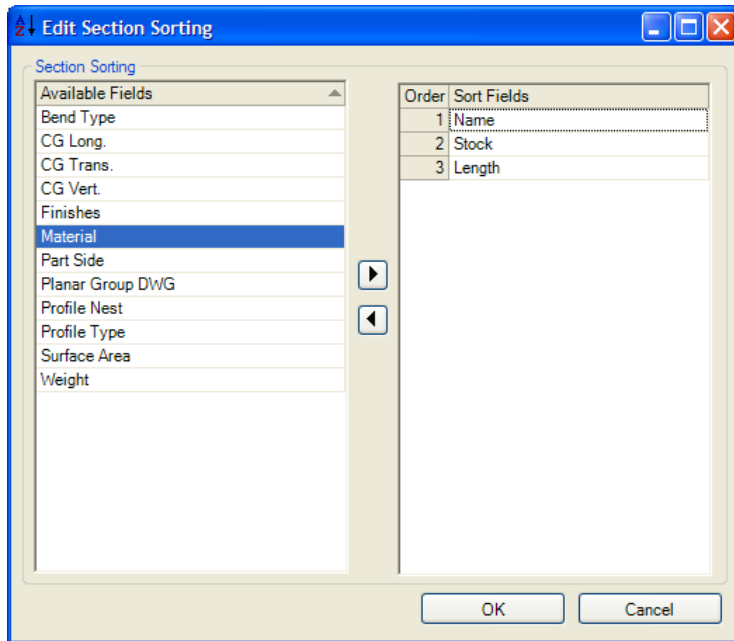


**WARNING:** The COUNT function will count the number of rows that have a value for that field, so for example, if you wanted a count of the number of parts with green, you could create 2 count fields, one on a CG point (to get total part count, as CG point will always be populated), and another on the Green Length field (to get the number of parts that have green).

**WARNING:** The AVG function computes a simple average of the values in the report. An average of CG points in a system or product hierarchy assembly is not the same as the CG of the system or product hierarchy assembly.

### Edit Sorting

Opens the Edit Section Sorting window and lets you sort the current report section by as many fields as you want. The sorting is applied in the order of the fields you have selected. To change the order of the selected fields, you can drag the rows up and down in the right list by dragging the “Order Number” cell.




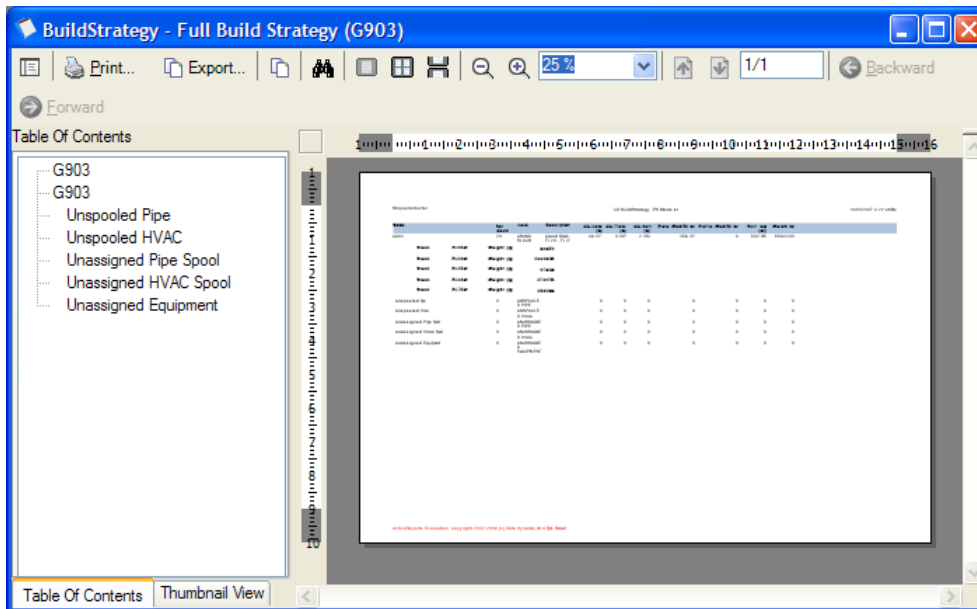
# Generating a Report

All reports are generated based on the assembly or system you select before you generate the report. This lets you generate the report for the whole project, a specific unit, or as small an assembly or system branch as you want.

## Generating a Product Hierarchy Report


To generate a report based on a product hierarchy

1. Choose ShipConstructor 2013 > Utilities > Report and select the Product Hierarchy tab in the Reports window.
2. Select the product hierarchy you want to generate the report for in the secondary tab.
3. Select the assembly you want to generate the report for in the product hierarchy tree for the selected product hierarchy. If you would like a report on your entire project, select the root "Project" assembly.
  - a. The generated report will automatically include any sub-assemblies of the assembly you have selected. However if you would like to select multiple assemblies at the same level (Unit 3 and 4, but not Unit 1 and 2 for example), you can CTRL+click to select multiple assemblies in the tree.
4. Select the desired report definition from the drop-down list.
5. Click Generate .




## Generating a Distributed Systems Report

To generate a report based on a Pipe or HVAC system

1. Choose ShipConstructor 2013 > Utilities > Report and select the Distributed Systems tab in the main Reports window.
2. Select either the Pipe or HVAC secondary tab.
3. Select the Pipe or HVAC system (or branch) you want to generate the report for from the system tree.
  - a. The generated report will automatically include any sub-systems of the system you have selected. However if you would like to select multiple systems at the same level (Ballast and FO, but not ER SW Cooling for example), you can CTRL+click to select multiple systems in the tree.
4. Select the desired report definition from the drop-down list.
5. Click Generate .

## Generating a Model Drawings Report


To generate a report based on model drawings

1. Choose ShipConstructor 2013 > Utilities > Report and select the Model Drawings tab in the main Reports window.
2. Check the model drawings you want to generate the report for from the drawings tree.
3. Select the desired report definition from the drop-down list.
4. Click Generate .

## Generating a 'Other' Report


To generate a report based on model drawings

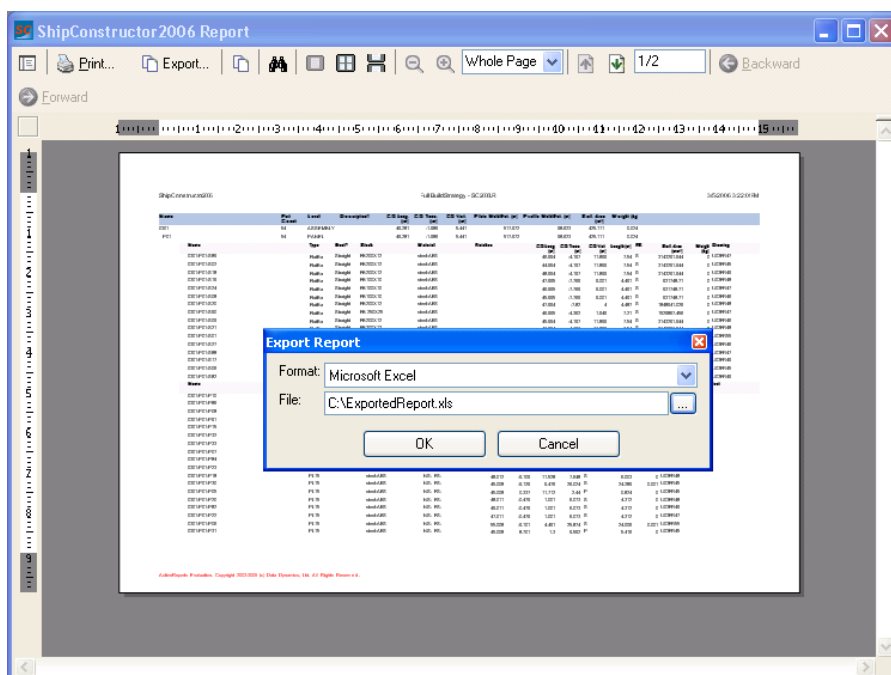
1. Choose ShipConstructor 2013 > Utilities > Report and select the Model Drawings tab in the main Reports window.

2. Select the desired report definition from the drop-down list.
3. Click Generate .

## Exporting a Generated Report

Once you have generated a report (see [Generating a Report](#)) you may want to export the report to another format for calculation or presentation purposes. Reports can be exported to four other formats: Microsoft Excel, HTML, Adobe PDF, and Rich Text Format (RTF).

To export a report, generate the report and then click Export  from within the report. You will be prompted for the type and location of the exported report.



The report is exported to the selected location when you click OK.

**HINT:** You may notice that some fields will line-wrap if the field width is not sufficient in your report definition. To correct this situation, modify your report definition and increase the column width of affected columns. Using the **Copy Report for Excel Export** command (see [Report Actions](#)) allows you to easily copy a completed report and modify the report definitions of both to maintain correct formatting for PDF and Excel.



# Index

## R

- report 3
  - create, edit definitions 8
  - distributed systems 14
  - edit window 10
  - export 15
  - generate 13
  - product hierarchy 13
  - window 8